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EXAMINER	
DUONG, OANH L	

ART UNIT	PAPER NUMBER
2155	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/647,070	ADHIKARI, PRASANNA	
	Examiner	Art Unit	
	Oanh Duong	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08/22/2003, & 01/22/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 are presented for examination.

Claim Objections

2. Claim 1 is objected to because of the following informalities: the feature "indicating a network isolation condition the aging indicator is not reset" in lines 6-7 should be "indicating a network isolation if condition the aging indicator is not reset". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 20, 23 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 20, the feature "the beacon packet may be used" in claim 20 in page 7 line 6 would raise a question that "the beacon packet is used" or "the packet is not used". In the case that the beacon packet is not used, how a network isolation condition can be determined. For the purpose of examination, examiner interprets "the beacon packet may be used" as "the beacon packet is used".

Regarding 23, it is not clear that "a neighboring node" in page 8 line 1 and "a neighboring node" in page 8 line 2 refer to the same or different node. Further, it is unclear that which one "the neighboring node" in page 8 lines 3, 5 and 7 refers to. For the purpose of examination, examiner assumes "neighboring node" in lines 1, 2-4, and 6 is any node that can performing a corresponding step defined in the claim 23.

Claim 24 is also rejected under 35 U.S.C. 112, second paragraph, by virtue of its dependency on claim 23. In addition, the feature "said receiving an acknowledgement further comprising transmitting the discover message only when the stored address is not an ancestor address " is unclear. For the purpose of examination, examiner assumes "said receiving an acknowledgement further comprising" as "further comprising".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

OR

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by **Gai** et al. (hereafter, Gai), U.S. **2002/0147800** A1.

Regarding claim 20, **Gai** teaches a method for establishing a self-healing tree network (i.e., *reconfigure the network following a change, such as a link failure*, page 3 paragraph [0020] and page 4 paragraph [0041]), comprising:

generating a beacon packet (i.e., BPDUs) including a unique source address (i.e., *the root switch generates and transmits BPDUs from its ports every hello time*, page 2 paragraph [0014] and page 6 page 6 paragraph [0057]);

transmitting the beacon packet downstream at an interval (i.e., hello time) that is less than an aging interval (i.e., maximum age) used to age the beacon packet (i.e., *BPDU frames are received every hello time, which is significantly less than the maximum age*, page 2 paragraph [0014]), whereby the age of the beacon packet may

be used by a node to determine a network isolation (i.e., *detect a failure simply waits for the respective BPDU information to time out or age*, paragraphs [0059]-[0060]).

7. Claims 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by **Ogier**, U.S. Pub. No. **2003/0095504** A1.

Regarding claim 21, **Ogier** teaches a method for re-establishing a network connection (i.e., *reestablish the broken link 24*, page 3 paragraph [0041], Fig. 1), comprising:

determining a network isolation (i.e., lost) based on an age indicator (i.e. status(B)) of a beacon packet (i.e., Hello message) received from a parent node (i.e., if *no Hello massage from neighbor node B is subsequently received within K * HELLO_INTERVAL, the receiving node A sets state(B) to "lost"*, page 16 paragraph [0227]);

searching for a new beacon packet from a neighboring node other than the parent node (i.e., *to perform neighbor discovery, node i periodically transmits a Hello message at predetermined interval,* page 14 paragraphs [0193]-[0194]);

receiving the new beacon packet from the neighboring node (i.e., *a node j receiving a HELLO message from a new neighbor, node i, responds with a NEIGHBOR message containing the identity of node j, sending the NEIGHBOR message to node i,* page 14 paragraph [0196]); and

transmitting a registration request to the neighboring node to establish the neighboring node as a new parent node (i.e., *node i sends the message NEW PARENT (src,sn) to node j. Upon receiving the NEW PARENT message, the new parent j adds/reregisters node i to the list of children*, page 7 paragraphs [0091]-[0092]).

Regarding claim 22, **Ogier** teaches the method of claim 21, further comprising: receiving an acknowledgement of the registration request from the neighboring node (i.e., *sends node i a link-state update message from the new parent node j*, page 7 paragraph [0029]); and establishing the neighboring node as a new parent node (i.e., *a link from node i to node j is established by node I receiving a NEIGHBOR packet from node j,* page 14 paragraph [0196].

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-3, 7-8, and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thang** et al. (hereafter, Thang), U.S. Pub. No. **2002/0167898** A1, in view of **Williams**, U.S. Patent No. **6,993,033** B1.

Regarding claim 1, **Thang** teaches a method for detecting a network isolation by a network node (i.e., *detecting faults within a network*, page 5 paragraph [0106]) comprising:

receiving a beacon packet (i.e., Hello packet) from a parent node over a network after an aging interval (i.e., HelloInterval) (i.e., *a Hello packet is received after it is broadcasted at hello interval*, page 10 paragraph [0206]); and

indicating a network isolation condition (i.e., fault) if a second beacon packet (i.e., Hello packet) is not received from the parent node before a second interval (i.e., Router Dead Interval) greater than the aging interval (i.e., HelloInterval) (i.e., *if a node does not receive a Hello packet from one of its neighbors within a timeout period called the RouterDeadInterval, the node assumes that its neighbor is now dead or a fault has occurred between the two. The RouterDeadInterval time is configured to be four times the value of the HelloInterval time*, page 10 paragraph [0206]).

Thang does not explicitly teach storing an aging indicator for the received beacon packet, and the aging indicator is not reset by a second beacon packet received from the parent node.

Williams teaches the network device includes a timer that defines an aging interval associated with the address table (see abstract). **Williams** teaches storing an aging indicator (i.e., hit bit) for a received packet (i.e., set/store hit bit when new entry/address corresponding to a received packet/frame is created, Fig. 4 col. 8 lines 49-59); and the aging indicator is not reset by a second beacon packet received from the parent node (the aging indicator is not reset because no packet has been received)

(i.e., hit bit or aging indicator in the address table is not set/reset since nodes corresponding to entries in the address table have not transmitted data/packet during a predetermined interval, col. 8 lines 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the aging indicator on the address table of **Williams** in the process of detecting a network isolation/fault in **Thang**. One would be motivated to do to allow entries in the address table corresponding to network nodes that have not transmitted any packet during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 2, **Thang** teaches the method of claim 1.

Thang does not explicitly teach the beacon packet comprising a universal destination address for validating the beacon packet.

Williams teaches the beacon packet comprising a universal destination address (i.e., VLAN address information) for validating the beacon packet (col. 5 lines 61-67 and col. 8 lines 42-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate a universal destination address of **Williams** in the beacon/Hello packet in **Thang**. One would be motivated to do so to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 3, **Thang** teaches the method of claim 1, said receiving further comprising:

receiving the beacon packet from a neighboring network node other than the parent node (page 11 paragraph [219]).

Thang does not explicitly teach dropping the beacon data packet received from the neighboring node when the network isolation condition is not indicated.

Williams teaches dropping packet/entry received from the neighboring node when the network isolation condition is not indicated (when network is normally operating, the existing entries corresponding to data packets received from the neighboring node in the address table will be dropped/deleted after a predetermined period of time to make room available for new entries, col. 8 lines 60-61).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of **Thang** to drop a received packet as in **Williams**. One would be motivated to do so to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be dropped/deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 7, **Thang** teaches the method of claim 1, wherein the second interval is at least twice the aging interval (page 10 paragraph [0206]).

Regarding claim 8, **Thang** teaches the method of claim 1, further comprising:

continuously receiving a plurality of beacon packets that are individually transmitted by a root node at an interval that is shorter than the predetermined aging interval (page 10 paragraph [0206]).

Regarding claim 12, **Thang** teaches the method of claim 1.

Thang does not explicitly teach storing performed by a network switching element of a node without any processing by a central processing unit (CPU) of the node.

Williams teaches storing performed by a network switching element of a node without any processing by a central processing unit (CPU) of the node (Fig. 3, col. 8 lines 26-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify teachings of **Thang** to perform storing by a network switching element of a node without any processing by a CPU of the node as in **Williams**. One would be motivated to do so reduce CPU processing time and load, thereby enhancing network performance.

Regarding claim 13, **Thang** teaches the method of claim 1.

Thang does not teach the network comprising an Ethernet protocol network.

Williams teaches the network comprising an Ethernet protocol network (col. 2 lines 62-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have utilized the Ethernet protocol network of **Williams** in the system of **Thang**. One would be motivated to do so to allow nodes in the network to negotiate with each other and transmit at the highest speed possible.

Regarding claim 14, **Thang** teach the method of claim 1.

Thang does not explicitly teach the age indicator stored in an age field of a packet address table.

Williams teaches the age indicator stored in an age field of a packet address table (col. 8 lines 42-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the age indicator stored in an age field of a packet address table of **Williams** in the process of detecting a network isolation/fault in **Thang**. One would be motivated to do to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 15, **Thang** teaches the method of claim 1.

Thang does not teach storing an age indicator for a plurality of stored data packets other than the beacon packet at the predetermined aging interval.

Williams teaches storing an age indicator for a plurality of stored data packets other than the beacon packet at the predetermined aging interval (col. 7 line 17-col. 8 lines 67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify **Thang** to store an age indicator for a plurality of stored data packets other than the beacon packet at the predetermined aging interval as in **Williams**. One would be motivated to do to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 16, this claim recites a computer readable medium encoded with processing instructions for implementing a method of claim 1, discussed above, same rationale of rejection is applicable.

Regarding claim 17, this claim represents an apparatus comprising means for performing method of claim 1, discussed above, same rationale of rejection is applicable.

Regarding claim 18, **Thang** teaches a method for identifying a network connection failure (i.e., *detecting faults with the network*, page 5 paragraph [0106]), the method comprising:

receiving a beacon packet from a parent node over a network, the beacon packet comprising a latest of a series of received beacon packets transmitted at a beacon interval (i.e., HelloInterval) by a root node (i.e., Hello packets are broadcasted/received from neighbor/parent node at every HelloInterval, page 10 paragraph [206]); and

determining a network failure (i.e., fault) if the subsequent beacon packet (i.e., Hello packet) has not been received from the parent node prior to an outage interval (i.e., RouterDeadInterval) that is greater than the aging interval (i.e. if a node does not receive a Hello packet from one of its neighbors within a timeout period called the RouterDeadInterval, the node assumes that its neighbor is now dead or a fault has occurred between the two. The RouterDeadInterval time is configured to be four times the value of the Hello Interval time, page 10 paragraph [0206]).

Thang does not explicitly teach storing an age indicator for a received packet after an aging interval that is greater than the beacon interval; and storing the age indicator until a receipt of a subsequent beacon packet.

Williams teaches the network device includes a timer that defines an aging interval/cycle associated with the address table (see abstract). Williams teaches storing an age indicator (i.e., hit bit) for the received beacon packet after an aging interval that is greater than the beacon interval (i.e., set/store hit bit when new entry/address corresponding to a received packet/packet is created, Fig. 4 col. 8 lines 49-59); and storing the age indicator until a receipt of a subsequent beacon packet (i.e., when the IRC 245 receives frame header information, it searches the IRC address table 320 for an entry that matches the source address and VLAN index included in the frame

header. If a match is identified, the IRC 245 sets the hit bit in the entry where the match is identified, col. 8 lines 26-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the aging function on the address table of **Williams** in the process of detecting a network isolation/fault in **Thang**. One would be motivated to do to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 19, **Thang** teaches the method of claim 18, the outage interval being at least twice the aging interval (page 10 paragraph [0206]).

10. Claims 4-6, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thang** in view of **Williams**, and further in view of **Meier** et al. (hereafter, Meier), U.S. Pub. No. **2004/0103282** A1.

Regarding claim 4,**Thang** teaches the method of claim 3.

the combination of teachings of **Thang and Williams** does not explicitly teach transmitting a request to the neighboring network node to register the neighboring network node as a new parent node when the network isolation condition is indicated.

Meier teaches system and method wherein subsequent reassociation requests are handled (see abstract). **Meier** teaches transmitting a request to the neighboring

network node to register the neighboring network node as a new parent node when the network isolation condition is indicated (page 15 paragraph [0356] and page 16 paragraph [0391]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the step of transmitting a request to the neighboring network node to register the neighboring network node as a new parent node when the network isolation condition is indicated of **Meier** in the combination of teachings of **Thang and Williams**. One would be motivated to do so to enable a node to register with a new parent node upon detecting a fault or roaming, thereby preventing an existence of disconnected path fragments in the topology tree (Meier, page 61 paragraph [1094] lines 1-2).

Regarding claim 5, **Thang** teaches the method of claim 4.

the combination of teachings of **Thang and Williams** does not explicitly teach transmitting a discovery message upstream; and reply to the discovery message from the neighboring network node on an upstream port.

Meier teaches transmitting a discovery message upstream (i.e., discovering its potential parent by sending an Advertisement-Request message, i.e., page 15 paragraph [0359] and page 16 paragraphs [0387]-[0388]); and reply to the discovery message from the neighboring network node on an upstream port (i.e., Advertisement-Reply message, page 16 paragraphs [0387]-[0389]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of **Thang and Williams** to transmit a discovery message and receive a reply to the discovery message as in **Meier**. One would be motivated to do so to allow a potential parent node to be fast and reliably discovered when failure of an old parent node or link to parent node is detected.

Regarding claim 6, **Thang** teaches the method of claim 4.

the combination of teachings of **Thang and Williams** does not explicitly teach receiving an approval from the neighboring network node in response to the request, deleting a parent status of the parent node, and storing an indication of the neighboring network node as the new parent node.

Meier teaches receiving an approval from the neighboring network node in response to the request (i.e., page 60 paragraph [1057] and page 16 paragraph [0392]), deleting a parent status of the parent node (i.e., page 61 paragraph [1094]), and storing an indication of the neighboring network node as the new parent node (i.e., page 13 paragraph [0307], page 15 paragraph [0361] page 72 paragraph 1345 and 307]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the steps of receiving an approval from the neighboring network node in response to the request, deleting a parent status of the parent node, and storing an indication of the neighboring network node as the new parent node of **Meier** in the combination of teachings of **Thang and Williams.** One

would be motivated to do so to assure that all nodes have successfully associated, authenticated and have security credentials cached (Meier, page 4 paragraph [0133]).

Regarding claim 9, **Thang** teaches the method of claim 1.

the combination of teachings of **Thang and Williams** does not explicitly teach transmitting the beacon packet received from the parent network node to all neighboring network nodes.

Meier teaches transmitting the beacon packet received from the parent network node to all neighboring network nodes (page 16 paragraph [0387]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of **Thang and Williams** to transmit the beacon packet received from the parent network node to all neighboring network nodes as in **Meier**. One would be motivated to do so to enable network parameters and availability of parent node to be periodically advertised, thereby allowing an active parent node to be automatically discovered.

11. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thang** in view of **Williams**, and further in view of **Ogier,** U.S. Pub. No. **2003/0095504** A1.

Regarding claim 10, **Thang** teaches the method of claim 1.

The combination of **Thang and Williams** does not explicitly teach receiving a network reconfiguration command; and selecting a new parent node that is not a descendant node within the network in response to the network reconfiguration command.

Ogier teaches receiving a network reconfiguration command (i.e., page 5 paragraph [0078]; selecting a new parent node that is not a descendant node within the network in response to the network reconfiguration command (page 5 paragraph [0078]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of **Thang and Williams** to select a new parent node responding to the network reconfiguration command as in **Ogier**. One would be motivated to do so to provide an improved neighbor discovery protocol that can efficiently establish/reestablish communications links between communications nodes (**Ogier**, page 1 paragraph [0003], lines 7-10).

Regarding claim 11, **Thang** teaches the method of claim 10.

the combination of teachings of **Thang and Williams** does not explicitly teach operating in a discovery state after receiving the network configuration command until an ancestor/descendent relationship is identified.

Ogier teaches operating in a discovery state after receiving the network configuration command until an ancestor/descendent relationship is identified (i.e., page 4 paragraph [0054]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of **Thang and Williams** to include operating in a discovery state after receiving the network configuration command until an ancestor/descendent relationship is identified as in **Ogier**. One would be motivated to do so provide an improved neighbor discovery protocol that can efficiently establish/reestablish communications links between communications nodes (**Ogier**, page 1 paragraph [0003], lines 7-10).

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ogier**, in view of **Meier**.

Regarding claim 23, **Ogier** teaches a method for accepting a child node (i.e., add the sending node to node's i list of children nodes, pages 5-6 paragraph [0080]) comprising:

receiving a beacon packet (i.e., HELLO message) from a neighboring node (a node j receiving a HELLO message from a new neighbor, node i, page 14 paragraph [0195]);

transmitting a registration request (i.e., a NEW PARENT (u,sn)) to a neighboring node (node i) to establish the neighboring node (i.e., sending node) as a child node (i.e., node i receives a NEW PARENT (u,sn) message from a sending node and adds the sending node to node i's list of children, pages 5-6 paragraphs [0079]- [0080]).

Ogier does not explicitly teach transmitting a discovery message on an upstream port to determine if the neighboring node is an ancestor node; and receiving an acknowledgement of the registration request if the discovery message is not later received from the neighboring node.

Meier teaches transmitting a discovery message on an upstream port to determine if the neighboring node is an ancestor (i.e., parent) node (i.e., an AP automatically discovers its parent via Advertisement protocol, page 15 paragraphs [0356]-[0359]); and receiving an acknowledgement of the registration request (Registration-Reply to acknowledge receipt of a registration request is forwarded outbound/downstream on the reverse path of the corresponding request, page 16 paragraph [0392]) if the discovery message (i.e., advertisement message) is not later received from the neighboring node (i.e., Meier discloses advertisement message is used to discover parent node(s), page 15, paragraphs [0351]-[0361]). Since advertisement message is inbound/upstream to parent node(s), children nodes would not receive the advertisement message. Meier further discloses If a child receives an advertisement message, it becomes deregistered/unattached, see page15 paragraph [0361], page 31 paragraph [0525], and page 33 paragraph [0565]). One of ordinary skill in the art will readily recognize that a child (i.e., MN), disclosed by Meier, is registered or an acknowledgement of the registration request is replied if the child does not receive the advertisement/discovery message).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the step of verifying the ancestor/descendent

relationship of **Meier** in the process of registration a child node in **Ogier**. One would be motivated to do so to allow an error to be detected during a child/parent registration process (**Meier**, page 31 paragraph [0525]).

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ogier**, in view of **Meier**, and further in view of **O'Neal** et al. (hereafter, O'Neal), U.S. Pub. No. **2003/0051051** A1.

Regarding claim 24, **Ogier** teaches the method of claim 23.

Ogier does not teach transmitting determining whether the neighboring node is an ancestor node based on a stored address of the neighboring node; and the discovery message only when the stored address is not an ancestor address.

Meier teaches discovery message only when a stored address is not an ancestor address (page 15 paragraphs [0356]-[0359]).

O'Neal teaches distribution system includes nodes having database with indicate their ancestor and descendants (see abstract). O'Neal teaches determining whether the neighboring node is an ancestor node based on a stored address of the neighboring node (page 5 paragraph [0073]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the step of determining whether the neighboring node is an ancestor node based on a stored address of the neighboring node of **O'Neal** in the process of reconfiguration of the network system in the combination of teachings

of **Ogier and Meier**. One would be motivated to do so to enable network nodes' descendants and ancestors to be indicated, thereby allowing network reconfiguration to be accomplished without burdening the network system (**O'Neal**, page 1 paragraph [0017], lines 7-11).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Kanuri et al., USPN 7,002,955 B1, disclose aging intervals are used to delete aged address entries from a network switch address table.

b. Higashiyama et al., U.S. Pub. No. 2004/001770 A1 discloses reconfiguring a spanning tree.

c. Medard et al., USPN 6,047,331, disclose a recovery mechanism upon detection of a failure in a network.

d. Dasgupta, USPN 5,926,101, discloses configuring a network using a partitioned spanning tree.

e. DeLong, USPN 6,141,344, discloses an aging protocol is provided to remove unutilized address cache entries.

f. Kinoshita, USPN 6,363,068 B1, discloses bridge configures a spanning tree and is connected to neighbor bridges via plural paths.

g. Yemimi et al., 2002/0029287 A1, disclose reconfiguration of network corresponds to node movement, failure or other network condition.

h. Finn et al., USPN 6,728,205 B1, disclose recovering from failure of link or node.

i. Higashiyama, U.S. Pub. No. 2001/0025318 A1 discloses method and apparatus for configuring a spanning tree.

j. Kaatz, USPN 6,934,299 B2, discloses beacon packet having indicator flag.

k. Ishii, U.S. Pub. No. 2001/0021177 A1, discloses link down detection

l. Saito et al., USPN 5,887,127, discloses self-healing fault restoration.

m. Gai, USPN 6,535,491 B2, discloses method and apparatus for rapidly reconfiguring computer networks using a spanning tree algorithm.

n. Wilby et al., USPN 5,941,955, discloses recovery of distributed hierarchical data access routing system upon detected failure of communication between nodes.

o. Chandra et al., USPN 6,889,245 B1, disclose automatically reconfiguring the network upon detection of a failure of a node of the network.

p. Lee et al., U.S. Pub. No. 2003/0235158 A1, disclose protocol for a self-organizing network using a logical spanning tree backbone.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Oanh Duong whose telephone number is (571) 272-3983. The examiner can normally be reached on Monday- Friday, 9:30PM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Oanh Duong
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